IN THE CLAIMS

Claim 1 has been amended as follows:

1. (Currently Amended) A method for supporting at least one of diagnosis and therapy of a pathological change of a blood vessel in a subject, comprising the steps of:

(a) at a point in time, acquiring [[an]] a single image of a blood vessel using an imaging modality, said single image being selected from the group consisting of pixel images and voxel images;

(b) from said single image, making a measurement of an existing quantity of non-calcified plaque and a measurement of an existing quantity of calcium-rich plaque associated with the blood vessel;

(c) determining an indicator value dependent on the respective quantities of non-calcified plaque and calcium-rich plaque from said measurement, and on the composition of said plaque in said blood vessel at said point and time;

(d) storing at least one limit value in a data processor and, in said data processor, comparing said indicator value with said at least one limit value to obtain a comparison result; and

(e) at an output unit associated with said data processor, presenting an output proposal dependent on said comparison result, selected from the group consisting of a proposal for a measure to be undertaken on the patient and a proposal for no measure.

2. (Original) A method as claimed in claim 1 wherein step (e) comprises presenting a therapy measure at said output unit as said proposal for a measure to be undertaken on the patient.

3. (Original) A method as claimed in claim 2 comprising presenting, as said therapy measure, a therapy measure selected from the group consisting of a pharmaceutical measure and an operative measure, dependent on said comparison result.

4. (Original) A method as claimed in claim 1 wherein step (e) comprises presenting a proposal at said output unit for a new examination of the blood vessel as said proposal for a measure to be undertaken on the patient.

5. (Original) A method as claimed in claim 4 comprising including, in said proposal for a new examination of the blood vessel, a time frame for implementing said new examination, selected from the group consisting of a point in time and a time interval, dependent on said comparison result.

6. (Original) A method as claimed in claim 5 comprising selecting said time frame to be inversely proportional to said indicator value.

Claim 7 has been amended as follows:

7. (Currently Amended) A method as claimed in claim 1 wherein said point in time is a first point in time, said single image is a first single image, and said indicator value is a first indicator value, and comprising the additional steps of:

storing said first indicator value in a storage medium accessible by said data processor, together with a location marking designating a position of the blood vessel in said first single image;

at a second point in time following said first point in time by a minimum of two days, acquiring a second single image of the blood vessel with an imaging modality, using said location marking to correlate a position of the blood vessel in the single second image with a position of the blood vessel in the single first image, said single second image being selected from the group consisting of poxel images and voxel images;

making a measurement of a quantity of said non-calcified plaque and a quantity of said calcium-rich plaque from said second single image; and

determining a second indicator value from the respective quantities of said non-calcified plaque and said calcium-rich plaque in said measurement from said second single image, representing a measurement of a quantity and a composition of plaque in the blood vessel at said second point ~~and~~ in time.

8. (Original) A method as claimed in claim 7 comprising including said second indicator value in the presentation at said output unit with an indication, relative to said first indicator value, of a change of said plaque in the blood vessel between said first point in time and said second point in time.

9. (Original) A method as claimed in claim 8 comprising displaying at said output unit a difference between said first indicator value and said second indicator value as said indication of said change.'

Claim 10 has been amended as follows:

10. (Currently Amended) A method as claimed in claim 7 comprising measuring the respective quantities of non-calcified plaque and calcium-rich plaque for determining said first indicator by measuring a mass and a volume of said non-calcified plaque from said first single image and measuring a mass and a volume of said calcium-rich plaque from said first single image, and measuring the respective quantities of non-calcified plaque and calcium-rich plaque for determining said second indicator by measuring a mass and a volume of said non-calcified plaque in said second single image and measuring a mass and a volume of said calcium-rich plaque in said second single image.

11. (Original) A method as claimed in claim 1 comprising employing, as said imaging modality in step (a), an imaging modality selected from the group consisting of computed tomography, magnetic resonance imaging, and geography and ultrasound.

12. (Original) A method as claimed in claim 1 comprising employing, as said imaging modality in step (a), multi-slice computed tomography.

13. (Original) A method as claimed in claim 12 comprising the additional step of administering a contrast agent for contrast enhancement of vascular vessels in said multi-slice computed tomography modality.

14. (Original) A method as claimed in claim 1 wherein step (c) comprises from said image, making a further measurement of a quantity of fibrous plaque in the blood vessel and a quantity of open lumen in the blood vessel, and determining said indicator value from said quantity of fibrous plaque and quantity of open lumen in addition to said quantity of non-calcified plaque and said quantity of calcium-rich plaque.

15. (Original) A method as claimed in claim 14 comprising determining a CT number for the blood vessel in the image and determining the respective quantities of non-calcified plaque, calcium-rich plaque, fibrous plaque and open vascular lumen, dependent on said CT number by classification as non-calcified plaque if said CT number is within a first interval, as fibrous plaque if said CT number is within a second interval, as a vascular open lumen if said CT number is within a third interval, and as calcified plaque if said CT number is within a fourth interval.

16. (Original) A method as claimed in claim 15 wherein said first, second, third and fourth intervals do not overlap and cover, without gaps, a range of said CT number between –50 and 1000.

Claim 17 has been amended as follows:

17. (Currently Amended) A method as claimed in claim 1 wherein step (c) comprises determining said indicator value as a ratio of the respective quantities of said non-calcified plaque and said calcium-rich plaque <u>in said single image</u>.

Claim 18 has been amended as follows:

18. (Currently Amended) A method as claimed in claim 1 wherein step (c) comprises measuring said quantity of said non-calcified plaque by determining a mass and a volume of said non-calcified plaque from said image, and measuring said quantity of calcium-rich plaque by determining a mass and a volume of said calcium-rich plaque from said single image.

Claim 19 has been amended as follows:

19. (Currently Amended) A data processing device for supporting at least one of diagnosis and therapy of a pathological change of a blood vessel in a subject, said data processor being supplied with [[an]] a single image of a blood vessel acquired at a point in time using an imaging modality, said single image being selected from the group consisting of pixel images and voxel images, and said data processor being programmed to:

from said single image, make a measurement of an existing quantity of non-calcified plaque and a measurement of an existing quantity of calcium-rich plaque associated with the blood vessel;

determine an indicator value dependent on the respective quantities of non-calcified plaque and calcium-rich plaque from said measurement, and on the composition of said plaque in said blood vessel at said first point ~~and~~ in time;

compare said indicator value with said at least one stored limit value to obtain a comparison result; and

at an output unit associated with said data processor, present an output proposal dependent on said comparison result, selected from the

group consisting of a proposal for a measure to be undertaken on the patient and a proposal for no measure.

20. (Original) A data processing device as claimed in claim 19 programmed to present a therapy measure at said output unit as said proposal for a measure to be undertaken on the patient.

21. (Original) A data processing device as claimed in claim 20 programmed to present as said therapy measure, a therapy measure selected from the group consisting of a pharmaceutical measure and an operative measure, dependent on said comparison result.

22. (Original) A data processing device as claimed in claim 19 programmed to present a proposal at said output unit for a new examination of the blood vessel as said proposal for a measure to be undertaken on the patient.

23. (Original) A data processing device as claimed in claim 22 programmed to include, in said proposal for a new examination of the blood vessel, a time frame for implementing said new examination, selected from the group consisting of a point in time and a time interval, dependent on said comparison.

24. (Original) A data processing device as claimed in claim 23 programmed to select said time frame to be inversely proportional to said indicator value

Claim 25 has been amended as follows:

25. A data processing device as claimed in claim 19 wherein said point in time is a first point in time, said image is a first single image, and said indicator value is a first indicator value, and wherein said data processing device is supplied with a second single image acquired at a second point in time following said first point in time by a minimum of two days, of the blood vessel with an imaging modality, using said location marking to correlate a position of the blood vessel in the second single image with a position of the blood vessel in the first single image, said second single image being selected from the group consisting of poxel images and voxel images and wherein said data processing device is programmed to:

store said first indicator value in a storage medium accessible by said data processor, together with a location marking designating a position of the blood vessel in said first single image;

make a measurement of a quantity of said non-calcified plaque and a quantity of said calcium-rich plaque from said second single image; and

determine a second indicator value from the respective quantities of said non-calcified plaque and said calcium-rich plaque in said measurement from said second single image, representing a measurement of a quantity and a composition of plaque in the blood vessel at said second point ~~and~~ in time.

26. (Original) A data processing device as claimed in claim 25 programmed to include said second indicator value in the presentation at said

output unit with an indication, relative to said first indicator value, of a change of said plaque in the blood vessel between said first point in time and said second point in time.

27. (Original) A data processing device as claimed in claim 26 programmed to display at said output unit a difference between said first indicator value and said second indicator value as said indication of said change.

Claim 28 has been amended as follows:

28. (Currently Amended) A data processing device as claimed in claim 19 programmed to measure the respective quantities of non-calcified plaque and calcium-rich plaque for determining said first indicator by measuring a mass and a volume of said non-calcified plaque from said first single image and measuring a mass and a volume of said calcium-rich plaque from said first image, and to measuring the respective quantities of non-calcified plaque and calcium-rich plaque for determining said second indicator by measuring a mass and a volume of said non-calcified plaque in said second single image and measuring a mass and a volume of said calcium-rich plaque in said single second image.

29. (Original) A data processing device as claimed in claim 19 programmed to make a further measurement from said image of a quantity of fibrous plaque in the blood vessel and a quantity of open lumen in the blood vessel, and determine said indicator value from said quantity of fibrous plaque

and quantity of open lumen in addition to said quantity of non-calcified plaque and said quantity of calcium-rich plaque.

30. (Original) A data processing device as claimed in claim 29 programmed to determine a CT number for the blood vessel in the image and determining the respective quantities of non-calcified plaque, calcium-rich plaque, fibrous plaque and open vascular lumen, dependent on said CT number by classification as non-calcified plaque if said CT number is within a first interval, as fibrous plaque if said CT number is within a second interval, as a vascular open lumen if said CT number is within a third interval, and as calcified plaque if said CT number is within a fourth interval

31. (Original) A data processing device as claimed in claim 30 programmed to employ first, second, third and fourth intervals that do not overlap and cover, without gaps, a range of said CT number between –50 and 1000.

32. (Original) A data processing device as claimed in claim 19 programmed to determine said indicator value as a ratio of the respective quantities of said non-calcified plaque and said calcium-rich plaque.

Claim 33 has been amended as follows:

33. (Currently Amended) A data processing device as claimed 19 programmed to measure said quantity of said non-calcified plaque by determining a mass and a volume of said non-calcified plaque from said image, and measure said quantity of calcium-rich plaque by determining a mass and a volume of said calcium-rich plaque from said <u>single</u> image.